

WHAT IS CLAIMED IS:

1. A data synchronization method performed by a computer relaying a plurality of data flows between a plurality of networks, comprising:
 - 5 a storing step of storing identifiers of a plurality of data flows to be synchronized;
 - a receiving step of receiving data flows flowing on at least one of the networks;
 - a selecting step of selecting, from the received data flows, a plurality of the data flows corresponding to the stored identifiers;
 - 10 a calculating step of calculating times when each packet included in the selected data flows has been generated by one or more sending terminals that have sent the selected data flows;
 - an order determining step of determining, in accordance with the calculated generation times, an order in which each packet included in the selected data flows is sent to one or more receiving terminals that are the destinations of the selected data flows;
 - 15 a sending time determining step of determining the sending times of each packet included in the selected data flows, such that intervals between the sending times of the packets are equivalent to intervals between the generation times of the packets and the packets are sent in accordance with said order; and
 - 20 a sending step of sending each packet to the one or more receiving terminals, based on the sending times.

2. The data synchronization method according to claim 1, wherein in the storing step, a screen for entering settings of the identifiers of the plurality of data flows to be synchronized is displayed, and the identifiers entered in that screen are stored.

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3. The data synchronization method according to claim 1, wherein in the selecting step, a plurality of data flows made of packets are selected, which include packets specifying time data related to times at which the one or more sending terminals sending the data flows have 10 generated the packets; and
in the calculating step, the generation times of the packets are calculated based on the time data.

4. The data synchronization method according to claim 1, wherein in 15 the sending step:
the packet sending times and the packets are temporarily stored in association with each other;
it is judged at a predetermined timing whether there are temporarily stored packets whose sending time have been exceeded; and
20 the packets whose sending times has been exceeded are sent out.

5. The data synchronization method according to claim 1,
further comprising a buffering step of temporarily storing packets included in the data flows selected in the selecting step;
25 wherein the calculating step calculates the generation times based on

an absolute time and a timestamp specified in an RTCP packet included in the selected data flow as well as a timestamp included in an RTP packet; and

wherein the sending time determining step determines a reference time T_0 for determining the sending times based on a time T_{rtcp} at which the 5 first RTCP packet has arrived from one of the sending terminals and a maximum time T_{max} for which packets can be stored in the buffering step.

6. The data synchronization method according to claim 1,

further comprising a buffering step of temporarily storing packets

10 included in the data flows selected in the selecting step;

wherein the calculating step calculates the generation times based on an absolute time and a timestamp specified in an RTCP packet included in the selected data flow as well as a timestamp included in an RTP packet; and

wherein the sending time determining step determines a reference 15 time T_0 for determining the sending times based on a time T_{rtcp} at which the first RTCP packet has arrived from one of the sending terminals and a time T_b that is necessary to store a predetermined amount of packets in the buffering step.

20 7. A data synchronization system relaying a plurality of data flows between a plurality of networks, comprising:

a storing means for storing identifiers of a plurality of data flows to be synchronized;

25 a receiving means for receiving data flows flowing on at least one of the networks;

a selecting means for selecting, from the received data flows, a plurality of the data flows corresponding to the stored identifiers;

a calculating means for calculating times when each packet included in the selected data flows has been generated by one or more sending terminals that have sent the selected data flows;

an order determining means for determining, in accordance with the calculated generation times, an order in which each packet included in the selected data flows is sent to one or more receiving terminals that are the destinations of the selected data flows;

10 a sending time determining means for determining the sending times of each packet included in the selected data flows, such that intervals between the sending times of the packets are equivalent to intervals between the generation times of the packets and the packets are sent in accordance with said order; and

15 a sending means for sending each packet to the one or more receiving terminals, based on the sending times.

8. A data synchronization program executed on a computer relaying a plurality of data flows between a plurality of networks, comprising:

20 a storing step of storing identifiers of a plurality of data flows to be synchronized;

a receiving step of receiving data flows flowing on at least one of the networks;

25 a selecting step of selecting, from the received data flows, a plurality of the data flows corresponding to the stored identifiers;

a calculating step of calculating times when each packet included in the selected data flows has been generated by one or more sending terminals that have sent the selected data flows;

5 an order determining step of determining, in accordance with the calculated generation times, an order in which each packet included in the selected data flows is sent to one or more receiving terminals that are the destinations of the selected data flows;

10 a sending time determining step of determining the sending times of each packet included in the selected data flows, such that intervals between the sending times of the packets are equivalent to intervals between the generation times of the packets and the packets are sent in accordance with said order; and

15 a sending step of sending each packet to the one or more receiving terminals, based on the sending times.

9. A data synchronization method performed by a computer relaying a plurality of data flows between a plurality of networks, comprising:

20 a receiving step of receiving, from at least one of the networks, a plurality of data flows made of packets, including packets specifying times at which one or more sending terminals sending the data flows have generated the packets;

a storing step of storing identifiers of a plurality of data flows to be synchronized, and a relay address of a relaying device relaying the plurality of data flows;

25 a selecting step of selecting, from the data flows received in the

receiving step, a plurality of the data flows corresponding to the stored identifiers;

a merging step of generating a merged packet in which those packets in the selected data flows that have the same generation time have been
5 merged into one packet; and

a sending step of sending the merged packet to the relay address.

10. The data synchronization method according to claim 9, wherein in the storing step, a screen for entering settings of the identifiers of the
10 plurality of data flows to be synchronized and the relay address of the relaying device is displayed, and the identifiers and the relay address entered in that screen are stored.

11. The data synchronization method according to claim 9, wherein
15 the storing step further stores a payload type of the respective data flows; and

the merging step merges those packets in the selected data flows that have the same payload type into one packet.

20 12. A data synchronization system relaying a plurality of data flows between a plurality of networks, comprising:

a receiving means for receiving, from at least one of the networks, a plurality of data flows made of packets, including packets specifying times at which one or more sending terminals sending the data flows have generated
25 the packets;

a storing means for storing identifiers of a plurality of data flows to be synchronized, and a relay address of a relaying device relaying the plurality of data flows;

5 a selecting means for selecting, from the data flows received with the receiving means, a plurality of the data flows corresponding to the stored identifiers;

a merging means for generating a merged packet in which those packets in the selected data flows that have the same generation time have been merged into one packet; and

10 a sending means for sending the merged packet to the relay address.

13. A data synchronization program executed by a computer relaying a plurality of data flows between a plurality of networks, comprising:

15 a receiving step of receiving, from at least one of the networks, a plurality of data flows made of packets, including packets specifying times at which one or more sending terminals sending the data flows have generated the packets;

20 a storing step of storing identifiers of a plurality of data flows to be synchronized, and a relay address of a relaying device relaying the plurality of data flows;

a selecting step of selecting, from the data flows received in the receiving step, a plurality of the data flows corresponding to the stored identifiers;

25 a merging step of generating a merged packet in which those packets in the selected data flows that have the same generation time have been

merged into one packet; and

a sending step of sending the merged packet to the relay address.

14. A data synchronization method performed by a computer relaying a plurality of data flows between a plurality of networks, comprising:

5 a receiving step of receiving, from at least one of the networks, a merged packet generated by the method according to claim 9;

a storing step of storing the destination addresses of the data flows included in the merged data flow including the merged packet;

10 a disassembling step of disassembling the merged packet and restoring the plurality of data flows; and

a sending step of sending the restored plurality of data flows to their respective destination addresses.

15 15. The data synchronization method according to claim 14, wherein in the storing step, a screen for entering settings of identifiers of a receiver location of the merged data flow and the respective destination addresses of the data flows is displayed, and the identifier and destination addresses entered in that screen are stored.

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16. A data synchronization system relaying a plurality of data flows between a plurality of networks, comprising:

a receiving means for receiving, from at least one of the networks, a merged packet generated by the method according to claim 9;

25 a storing means for storing the destination addresses of the data

flows included in the merged data flow including the merged packet;

 a disassembling means for disassembling the merged packet and restoring the plurality of data flows; and

 a sending means for sending the restored plurality of data flows to

5 their respective destination addresses.

17. A data synchronization program executed by a computer relaying a plurality of data flows between a plurality of networks, comprising:

 a receiving step of receiving, from at least one of the networks, a

10 merged packet generated by the method according to claim 9;

 a storing step of storing the destination addresses of the data flows included in the merged data flow including the merged packet;

 a disassembling step of disassembling the merged packet and restoring the plurality of data flows; and

15 a sending step of sending the restored plurality of data flows to their respective destination addresses.